

IEP 2019 Abstract: Miles Daniels, Eric Danner and others

Title: Water Flow and Temperature Considerations for Multi-Species/Run Management on the Sacramento River.

Water flow and temperature play a critical role in the health of fishes. For many fish species, prolonged exposure to high water temperature in spawning grounds during early life stages can result in morbidity or mortality. While at later life stages, cold water may constrain growth and potentially increase impacts associated with size-specific survival. Similarly, flow in a river can have both positive and negative impact on fish, depending on life stage and species. For example, high flows during winter may provide environmental cues for migration, while low flows may result in stranding or a general restriction of available habitat. Additionally, some species of fish or runs of the same species may benefit from certain flow and/or temperature conditions which can be in competition of the needs of other runs and/or species. In the Sacramento River Watershed of California, federally listed winter and spring-run Chinook Salmon in addition to Green Sturgeon are all reliant on the temperature and volume of water released from Shasta Reservoir, the largest reservoir in California. This presentation will focus on questions around managing Shasta Reservoir resources for multiple fish species/runs, with an emphasis on using simulation modeling to evaluate management scenarios.